CLASS SPECIFICATION

TITLE	GRADE	EEO-4	CODE
PRECISION MACHINIST	**33**	**G**	**9.407**

DEFINITION OF THE CLASS:

Under general supervision, performs precision machinist work such as designing and/or fabricating new components, special tools and equipment; modifying existing assemblies and parts; and performs related duties as required. Examples of work include manufacturing and repairing: special mechanic tools; components for highway equipment; specialized equipment for the Department of Transportation's Materials and Testing Division; and components for research and teaching projects such as the development of lasers and electron-atom scattering apparatus vacuum chambers.

EXAMPLES OF WORK: (The following is used as a partial description and is not restrictive as to duties required.)

Working from blueprints, sketches, verbal descriptions or defective parts, develops a drawing of the specific piece to be machined and determines the dimensions and tolerances. Selects the appropriate metal, alloy, or other material based on knowledge of the properties of the material and the purpose for which the piece will be used. May confer with engineering personnel to confirm details of the design and material selection. May provide cost estimates by calculating labor and material requirements.

Lays out material in preparation for machining by referring to the drawing and measuring, marking, and scribing dimensions and reference points on the material.

Sets up for the job by: selecting the appropriate machines, tooling and method of finish and determining the appropriate feed rates, cutting speed, and depth of cut. Operates machine tools such as lathes, milling machines, grinders, and drill presses to manufacture the piece to specifications which often involves working to a tolerance of .001 inch. Refers to charts and formulas for drilling, tapping, turning, boring, and threading. May fabricate parts from sheet metal by shearing and bending the piece with correct radius. Verifies that the piece conforms to specification by measuring it with various precision measuring tools such as calipers, indicators, micrometers, and height gauges. May also perform heat-treating and welding. Machining work is performed independently and determinations are made by applying knowledge of design and construction; mathematics; properties of the material used for fabrication; layout, machining and assembly procedures.

May participate in selecting and ordering the equipment, tools and material required for shop operations by: reviewing products; performing cost analysis; preparing specifications; locating vendors; and making recommendation to supervisor.

May assist students, faculty, and staff select tools and materials and operate machine tools to complete projects or assignments.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES REQUIRED: (These may be acquired on the job and/or needed to perform the work assigned.)
Working knowledge of agency and division rules, policies, and procedures.

Ability to perform heat-treating and heliarc welding. Ability to gather, compile and analyze information required to justify equipment and material needs.

ENTRY KNOWLEDGE, SKILLS AND ABILITIES REQUIRED: (Applicants will be screened for possession of these through written, oral, performance or other evaluation procedures.)

Working knowledge of the properties and characteristics of metals, alloys, and other material used in fabrication such as plastic, nylon, and rubber. Working knowledge of the methods, tools, and equipment used in precision machine work. Working knowledge of algebra and basic trigonometry and applied to the design and manufacture of components.

Ability to write sufficient to prepare recommendations for equipment and materials. Ability to read sufficient to read and interpret specifications and machinist manuals. Ability to establish and maintain cooperative working relationships with co-workers and agency staff. Ability to work independently and follow through on assignments with minimal direction. Ability to read and interpret blueprints. Ability to make drawings from rough sketches and verbal descriptions. Ability to determine which machines and tools are suited to manufacture components as quickly and easily as possible. Ability to modify and/or adapt designs, procedures, or methods to minimize shop time or improve the strength, performance or operation of components. Ability to determine what tolerances could or should be on machined components and mating parts. Ability to perform prototype machine work. Ability to sharpen drill bits by hand.

Skill in all aspects of machining including grinding special tools from carbide and high speed steel. Skill in safely operating, maintaining, and repairing the equipment used in precision machine work. Skill in using precision measuring instruments.

EDUCATION AND/OR WORK EXPERIENCE:

I

Three years of journey level experience as a precision machinist, precision instrument and tool maker or closely related occupation which included experience in design and layout work and operating a variety of machine tools to manufacture precision components, instruments and tools, plus 30 semester credits with an emphasis in machine trades courses; OR

II

An equivalent amount of experience and education that provided that applicant with the required entry level knowledge, skills and abilities. An additional year of journey level experience may be substituted for 30 semester credits with an emphasis in machine trade courses.

SPECIAL NOTE: Some positions may require that applicants furnish their own tools.

This class specification is used for classification, recruitment and examination purposes. It is not to be considered a substitute for work performance standards for positions assigned to this class.

	9.407
ESTABLISHED:	7/1/91P
	11/29/90PC